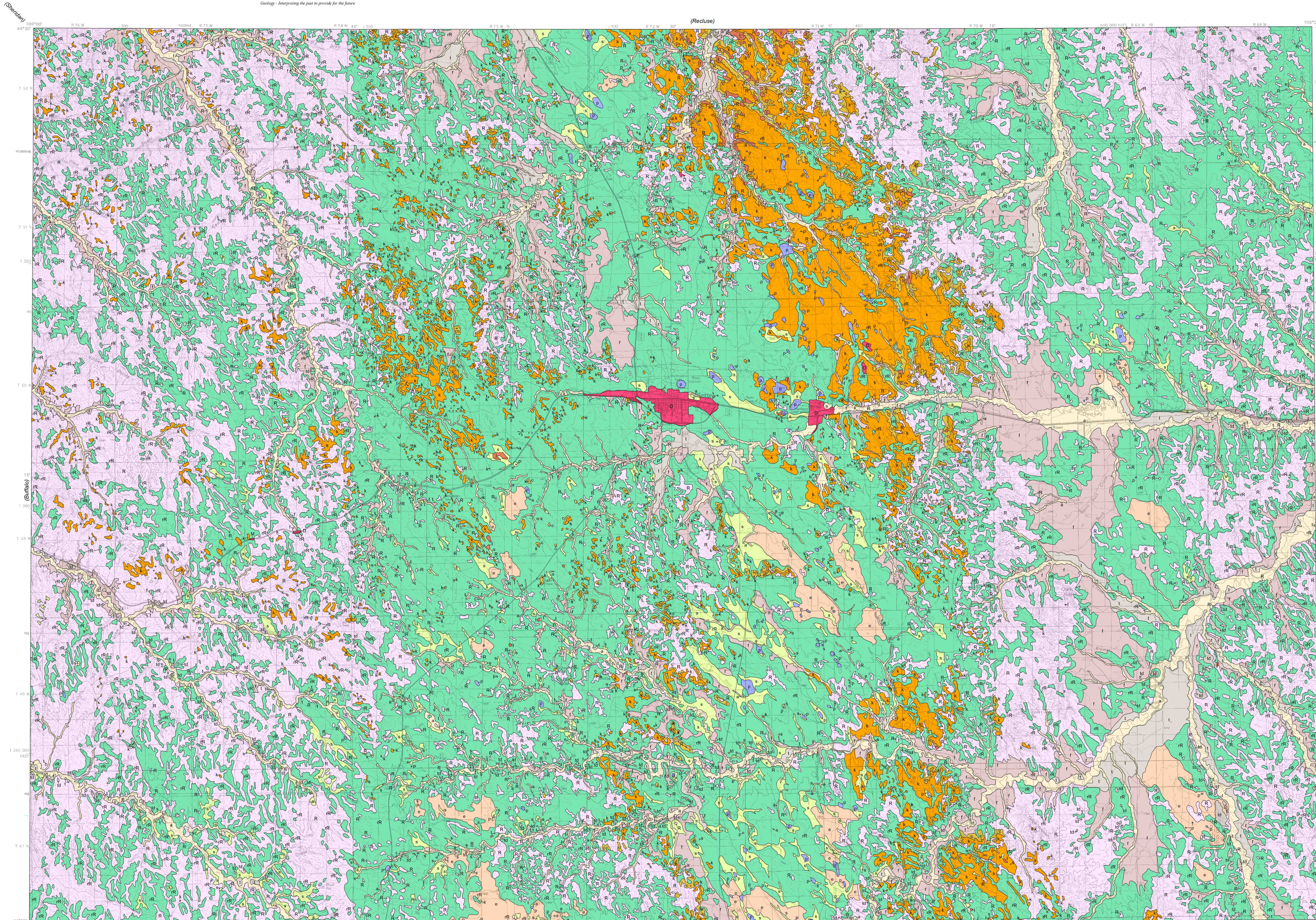


Geology - Interpreting the past to provide for the future



Prepared in cooperation with the
U.S. GEOLOGICAL SURVEY



CLASSIFICATION AND DESCRIPTION OF MAP UNITS

(see Rehels, 1987, for origin of units and their position in the landscape)

Alluvial deposits

Alluvium

a On floodplains and low terraces as much as 10 feet (3 m) above stream beds; silt and sand containing rare pebbles of sandstone, ironstone, and baked and fused rock (clinker); interbedded with silty clay or gravel (101)

Alluvial Fan deposits

f Upper 1 to 10 feet (0.3 to 3 m) sheetwash alluvium, grades down into stream alluvium containing small lenses of angular to subangular gravel composed of clinker, sandstone, and ironstone (201)

Terrace deposits

t Alluvium on terraces 16 to 33 feet (5 to 10 m) above present stream level; sand, silt, and clay with rare pebbles, mostly clinker; may contain buried soil horizons rich in clay and organic material; upper 3 feet (1 m) commonly contains calcium carbonate (601)

td Older dissected terrace deposits—Gravel and sand with minor silt occurring as caps on hills and ridges 16 to 66 feet (5 to 20 m) higher than present stream levels; pebbles of sandstone, chert, chertstone, fossil wood, clinker, and quartz. Locally cemented and crusted with iron and manganese oxides or calcium carbonate (602)

Eolian deposits

e Windblown sand in dunes or sand and silt in discontinuous sheets of irregular thickness; massive to faintly bedded. Eroded from poorly cemented outcrops and deposited downwind in low dunes or as irregular blankets (701)

Landslide deposits

l Blocks of sandstone, siltstone, and clinker that have moved downslope and broken and mixed with finer sediments. Forms hummocky terrain bounded upslope by crescentic scarps and downslope by lobate toes. Some older landslides are stabilized and vegetated and their topography has been modified by erosion; younger landslides have fresh scarps and lack vegetation and may be still active (801)

Playa lake deposits

p Massive gray clay and silt; white alkali in some places. Deposited by wind and sheetwash into ephemeral lakes; located in natural closed depressions in gently sloping terrain, probably related to blowouts associated with eolian deposits (1001)

Sheetwash

s Alluvium composed of sand, silt, and clay with few interbeds of gravel. Mostly reworked material in gently sloping valley bottoms and in upland depressions, derived from higher slopes, includes small areas of residuum (1101)

Colluvium

c Angular bedrock fragments as large as boulders, mostly of clinker, in an unsorted matrix of sand silt, and clay. Locally includes small areas of clinker (k), residuum (r), and small or indistinct landslide deposits (l) (1201)

Residuum on bedrock

r Gray to brown sand and silt with variable clay content grading downward into unweathered bedrock (see Rehels, 1987, for specific formation); locally contains sheetwash alluvium in upper 3 feet (1 m) or near the surface. Some areas of fine gravel on Wasatch Formation with boulders and cobbles of brown to purple arkosic conglomeratic sandstone, commonly occurring free of a finer matrix (1401)

Bedrock

R Includes Wasatch Formation (yellowish gray to light-brown fine-grained sandstone, light-gray siltstone and shale, and coal, poorly consolidated except for a few well-cemented sandstone beds), Fort Union Formation (light-gray to yellowish brown, fine-grained sandstone, light-gray siltstone, mudstone, and shale, brown carbonaceous shale, and coal), and Lance Formation (dark-gray to brown shale and drab, massive to cross bedded lenticular concretionary sandstone) (1501)

Clinker

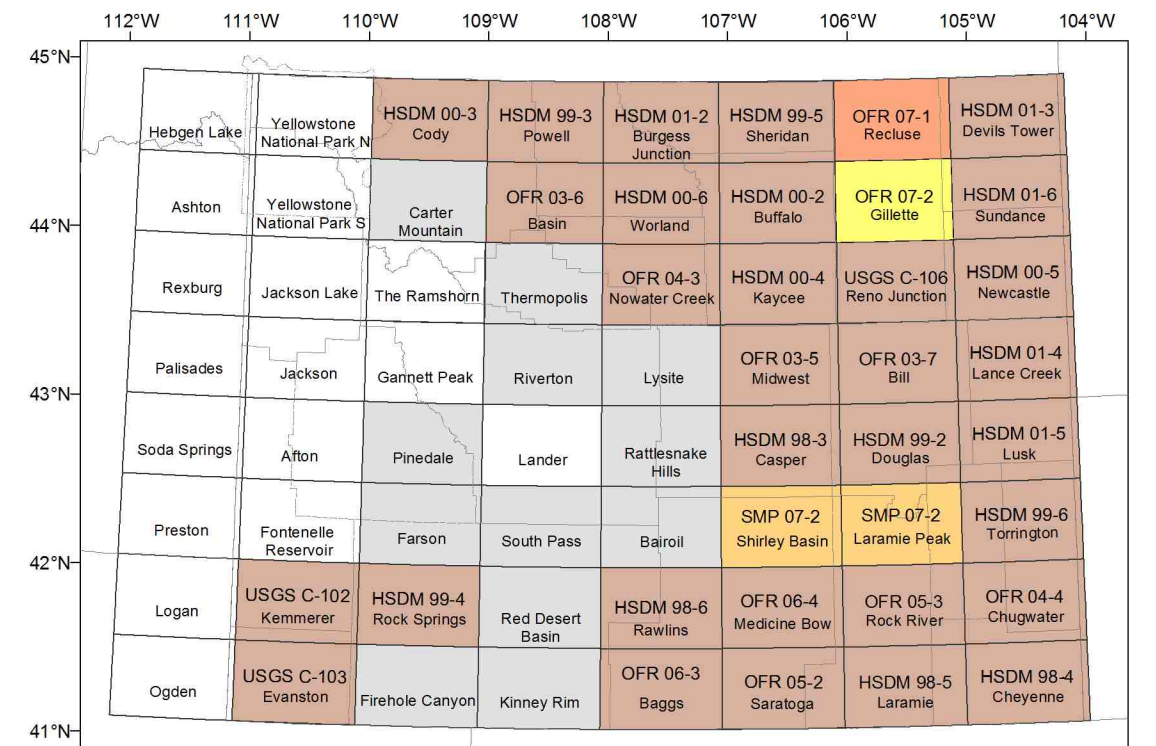
k Baked and fused bedrock (Wasatch and Fort Union formations) altered by *in situ* burning of coal beds. Mostly hard, dense, red to orange baked shale and siltstone (porcellenite); some black, bubbly, sometimes glassy rock (bucheite); resembles volcanic rocks and slag formed by melting of rocks. Gray or white coal ash occurs as layer 2 to 12 inches (5 to 30 cm) thick at base of or within porcellenite zone (same color as on HSDM 99-5, Sheridan surficial)

Disturbed or mined areas

D Primarily bulldozer-graded residuum, artificial fill, bedrock, and mine spoil mapped only where former character of surficial deposits has been obscured

REFERENCE CITED

Rehels, M.C., 1987, Surficial geologic map of the Gillette 30' x 60' Quadrangle, Campbell and Crook Counties, Wyoming: U.S. Geological Survey Coal Investigations Map C-105, scale 1:24,000, color.



Compiled maps Proposed maps Maps in progress Published maps
Current map

KEY TO ABBREVIATIONS
U.S. Geological Survey maps: Coal Investigations Series (C), Wyoming State Geological Survey maps: Open File Report (OFR), Hazards Section Digital Map (HSDM), and unpublished STATMAP project (SMAP).

INDEX TO 1:100,000 SCALE SURFICIAL GEOLOGIC MAPS OF WYOMING

DISCLAIMERS

Users of these maps are cautioned about using the data at scales different than those at which the maps were compiled—using this data at a larger scale will not provide greater accuracy, and in fact, it is a misuse of the data.

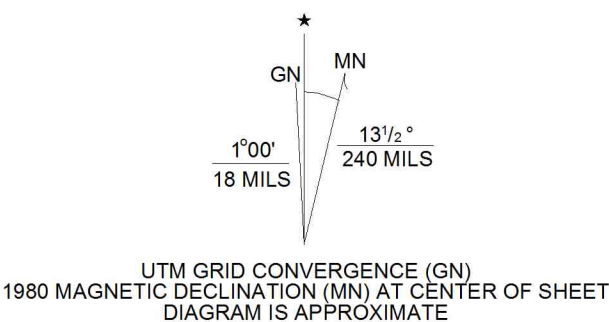
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Base map from U.S. Geological Survey 1:100,000-scale metric topographic map of the Gillette, Wyoming Quadrangle, 1980.

Projection: Universal Transverse Mercator (UTM), zone 13
North American Datum of 1927 (NAD 27)
10,000-meter grid ticks: UTM, zone 13
50,000-foot grid ticks: Wyoming State Plane Coordinate System, east zone.



* This map was digitized and modified to match the classification scheme and conventions used by the Wyoming State Geological Survey on adjoining digital surficial quadrangle maps. Based on original mapping by Rehels (1987).

SURFICIAL GEOLOGIC MAP OF THE GILLETTE 30' x 60' QUADRANGLE, CAMPBELL, CROOK, AND WESTON COUNTIES, WYOMING

by
Marith C. Rehels
2007

Prepared in cooperation with and research supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program, under USGS award number 05HQAO0062. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the U.S. Government.

Digital cartography by Robin W. Lyons.

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